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UNDER THE EDITORIAL DIRECTION OF

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A COSMOPOLITAN BIWEEKLY FOR THE GENERAL PRACTITIONER

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Editorial Department.

FEW physicians slight obligations thrust upon them, whether they be professional, civic or personal. It is true they usually do not encourage obligations outside of their professional limits, but taken as a whole we believe physicians are good citizens, and do their parts in sustaining the affairs of the community in which they live. Recently, at a banquet given in Chicago, the subject of "The Doctor in Politics," was thoroughly discussed, and we

The Physician in Civic Affairs.

learn "the doctors were fittingly rebuked for their indifference to politics and civic affairs." We dare say this rebuke was administered by some one who knows more of politics than he does of medicine; more of ward healers than of applied therapeutics; more of a party caucus than of the proceedings of a medical society. But let that be as it may we can stand the rebuke, because the "reprehensible lack of civic spirit and pride" is peculiar to the profession, which next to the priest-hood, does not tell all it knows on the street-corners, nor cater to the public applause in its acts. A newspaper man, a lawyer, or any public official cannot fathom the simple ethics of the medical profession which teaches the physician his duty to the public, to his patient, to his brother practitioner and to himself. We dare say no true physician ignores any one of his numerous obligations; on the contrary, we know he goes beyond where duty leads, into the boundless field of charity. Somehow "the reprehensible lack of civic spirit and pride" sink into abject nothingness, when the unostentatious acts for humanity done by these god-fearing silent workers are contrasted with the blatant acts of "the Doctor in Politics." We have no criticism of the man who has time, taste and talents for politics, to serve as best he can in this field of human endeavor, where good and true men are in demand. But why rebuke "the physician" in particular, to whom time is both opportunity and money, because he does not care to play at the game where selfish, sordid greed, vain pretense and hollow mockery seem to be the stock in trade. Why is the doctor under a greater obligation to actively interest himself in matters pertaining to local government, public education and other civic service than almost any other citizen in his community? We are told this is so because of his fitness for responsibility due to his education, high ideals of character and the close relationship he sustains to the families and homes of the community in which he lives.

He cannot be a successful practitioner without some measure of scholarly attainment. A physician's knowledge is rarely confined to pathology and therapeutics. He has been in the college atmosphere. He has a taste for books and a desire to explore the wide fields of scientific investigation. He is generally a man of liberal culture and refined instincts. His profession also gives wide knowledge of men.

Granted that all of this very flattering comment on the physician's qualifications for public life is true. Yet, we believe that the average physician of culture who loves culture for culture's rewards, who loves his profession, who has pride in his own humble position in it, will discharge a greater duty to his community, to his state and his country, by the good he can do by devotion to his profession. He is in a community for the single purpose of helping his people through the silent channels peculiar to his profession.

Public service cannot but help impair his usefulness as a practitioner, because the responsibilities of civic positions, when once undertaken, should be carried; duty alone would demand it of a physician, consequently his devotion to these obligations would be just as binding as those to which he subscribes when he becomes a physician. We believe the active practitioner of medicine is not in duty bound to serve in any civic position. Nor do we believe such a civic position "a larger field of usefulness" than the humble position of practitioner of medicine. Let every physician decide for himself what is duty, but the field of civic usefulness when applied to physicians cannot be measured by the ordinary rules which govern men's position in politics.

F. P. N.



In a wonderfully interesting paper, full of argument based on scientific facts, and presented with the spirit of the scholar seeking truth, Prof. J. G. Adami, M. D., of Montreal (Philadelphia Medical Journal, February 22, 1902), has arraigned the heresy of Koch. The arguments are seemingly indisputable and the deductions logical, because formulated after careful consideration of the whole of this mighty question. No paper within the past year is of greater value to the cause of scientific medicine, because of its unmeasurable influence upon preventive medicine.

Adami grasps the problems of human and bovine tuberculosis, and in a practical presentation of an array of facts explodes the recent teachings of Koch, and shows how error, almost criminal in its trend, has crept in to mar the brilliant name won by Koch in his original investigations in tuberculosis. There is no question before the profession of greater importance than that found in the prophylaxis of tuberculosis, hence the value of this timely paper of Adami, whose conclusions are as follows:

"In endeavoring to record as impartially as is in my power the various data we possess bearing upon this question of the intercommunicability of human and bovine tuberculosis, it may well be that detailing many facts, some of which upon first reading seem to point in the one direction, others in a direction diametrically opposite, I have left the unfamiliar

**Dr. Adami on
the Koch Heresy
of Human
and Bovine
Tuberculosis.**

reader uncertain as to my interpretation of the same, and as it is only right that the reader should expect from me possible definite conclusions that he should know what are my opinions, it is fitting that I should sum up the conclusions which I regard as safely to be deduced from our present knowledge of this subject. These conclusions are:

"1. Bovine tuberculosis is easily conveyed from cattle to cattle and, whether by inhalation (the most common method), by the milk (in calves), by contamination of stalls and drinking water through the agency of the saliva and nasal discharge, through the genito-urinary passages, or by intrauterine infection (very rare), this transmission from one animal of the bovine species to another is far and away the commonest mode of infection in cattle, so common that for practical purposes all other modes may be neglected.

"2 Human tuberculosis is transmissible to cattle. Pure cultures of these bacilli rarely cause infection. Mixtures of tubercle bacilli with other micro-organisms (as in sputum) appear to be more infectious. The difficulty in inducing artificial tuberculosis favors the idea that natural infection of cattle with human tubercle bacilli must be of singularly rare occurrence.

"3. Swine appear to be fairly easily infected with both human and bovine tubercle bacilli and when infected with the former these gain an increased virulence for guinea-pigs and rabbits. But while through the use of infected milk these animals become frequently infected from cattle, conditions favoring the reverse process are rare. Thus, while it may occasionally be that swine, or possibly other domestic animals, act as intermediaries in the passage of tuberculosis from human beings to cattle, the conditions favoring such transmission from man to the hog, or from the hog to cattle, so rarely show themselves that again, for practical purposes, this mode of infection may be neglected.

"4. If this be so, it should be possible to eradicate bovine tuberculosis in a region in which human tuberculosis continues to be widespread.

"5. Human tuberculosis in the majority of cases is conveyed from human being to human being by inhalation, more rarely it is conveyed through the alimentary tract, still more rarely through the genital tract, through surface wounds, and, from the mother to the fetus, during intrauterine life.

"7. By sojourn in the human body and passage from man to man the human tubercle bacilli have acquired properties differing from those acquired by bacilli which have passed through cattle: their shape differs, the rate of growth and the appearance of the growths outside of the body are different; their virulence towards the animals of the laboratory is also different.

"8. These differences are not, however, sufficiently marked or constant enough to permit us to conclude that we are dealing with distinct species. On the contrary, the evidence at our disposal points clearly to the fact, that in the different species of animals we encounter at most races of tubercle bacilli which by growth in the bodies of animals of another species take on the characteristics of the race of bacilli peculiar to that species.

"9 Bovine tuberculosis can be transmitted to man and this either through wounds or through the digestive tracts.

"10. By passage through cattle, rabbits and guinea-pigs, but lessened virulence for man and (it would seem also) for carnivorous animals.

"11. Save in the very rare cases of wound infection, there is a significant lack of evidence that bovine tubercle bacilli infect adult human beings.

"12. It is infants and those of early age who are liable to be infected by the tubercle bacilli of bovine origin and this through the agency of milk. The statistics bearing upon the continued frequency of tuberculosis in children and upon the relative frequency of intestinal and abdominal tuberculosis in children must be accepted as conclusive evidence upon this point.

"13. Even with children a consideration of the great frequency of bovine tuberculosis in certain regions and of the absence of any record of tuberculosis affecting those supplied from a given 'milk round,' leads to the conclusion that the bovine bacilli have not heightened virulence.

"14. The few positive records we possess of direct transmission of tuberculosis from cattle to man through the agency of milk indicated that infection is brought about only by the employment of milk of cattle which are very extensively diseased, more especially of those suffering from udder disease. In other words, large numbers of bacilli are required in order to infect human beings with bovine tuberculosis. This again is an indication that the bacillus cannot be regarded as having gained a heightened virulence for man, and that infection is not very readily communicated.

"15. Animals showing physical signs of tuberculosis (for mild grades of the disease afford no physical signs) and above all, those exhibiting udder tuberculosis, should therefore be condemned and under no conditions should their milk be used for food.

"16. Where there is tuberculosis in a herd, Bang's method should be employed, the animals reacting to tuberculin being separated from the healthy ones; the milk from the reacting animals for whatever purpose used, should be Pasteurized so as effectively to destroy the tubercle bacilli. (Vide previous report.)

"17. The great cause of infantile mortality is inflammation of the stomach and intestines (gastro-enteritis and diarrhea) and this is proved to be mainly brought about by the use of badly kept and fermenting milk. Wholly apart therefore from the question of tuberculosis it is imperatively necessary that greater care should be exercised by all concerned in the distribution of milk, the general measures taken to lessen this, the greatest scourge of childhood (prohibition of use of milk from cattle showing any form of sickness, Pasteurization of milk, etc.), will equally lessen the danger of the transmission of tuberculosis from cattle to man.

"Had this been more fully realized at the agitation (in England more especially) for municipal and governmental supervision of the milk supply and for the distribution of pure milk and based upon what we know concerning contaminated milk in general and its dangers, rather than, as it was, upon the danger arising from the conveyance of tuberculosis, it is safe to say that Koch's address would not nearly have had the same deleterious effect.

"But acknowledging this, Koch is by no means absolved from blame for the manner in which he published his conclusions. It was his duty to have pointed out that those conclusions did not effect in the slightest the legislative and other measures adopted to reduce the danger to cattle and to the agricultural community resulting from the spread of tuberculosis among cattle and the domestic animals. Not doing this he left it to be inferred that legislation against bovine tuberculosis is in excess of what is necessary. And this, it is right to protest, was little less than criminal on his part."



FINDING OF THE TETANUS COURT.—As a result of the investigation to fix the responsibility for the 13 deaths from tetanus following the injection of anti-diphtheric serum in St. Louis, the committee, consisting of the Board of Health and a committee from the city council made the following report:

Pursuant to the resolution adopted by the Board of Health on November 25, 1901, in reference to investigating the responsibility of the Health Department as charged in the coroner's verdict in regard to the deaths from the use of diphtheria antitoxin, prepared and distributed gratuitously by the city, the board, after having made, jointly with a committee of the city council, a searching and complete investigation of the matter, does find:

1. That the diphtheria antitoxin heretofore issued by the city was prepared, bottled and distributed by and under the supervision of Dr. Amand Ravold, who was employed by the Health Commissioner, with the approval of the Board of Health, in 1894, as consulting bacteriologist, and to have charge of the preparation and distribution of diphtheria antitoxin, and that he was responsible for the quality of material so prepared and distributed.

2. That a horse kept by the city under the supervision of Dr. Ravold, as a producer of diphtheria antitoxin serum, was bled by him September 29, 1901, and on October 2 was found to have tetanus and was killed.

3. From Dr. Amand Ravold's testimony, the poisonous character of the serum from this bleeding of September 29 was known to him, but he failed to cause the serum to be destroyed.

4. That, owing to this inexcusable negligence, the poisonous serum was, in part, bottled and issued to physicians between October 10 and 23, with the deplorable results which instigated the coroner's investigation.

5. That the bottling of the serum proven to be poisonous was done by Henry Taylor, who was janitor of the City Chemist's office, and assistant, at the time, to Dr. Ravold in the work of preparing the serum for issuance.

6. That it does not appear that Henry Taylor was aware of the poisonous character of the serum at the time, but that his course is reprehensible in that he obscured and retarded the investigation by conflicting statements under oath.

In view of the foregoing finding, the board recommends that Dr. Amand Ravold and Henry Taylor be dismissed from the service of the Health Department. And the board further recommends that the city do not hereafter manufacture diphtheria antitoxin.

OUR MONTHLY QUIZ.

Prizes Open to Fortnightly Subscribers.

TOPIC FOR MARCH.

2. How do you treat the rheumatic affections, viz.: Rheumatic fever, sub-acute and chronic rheumatism?

TOPIC FOR APRIL.

3. Best arrangement of the sick room in the home.

Answers should reach this office not later than the 15th of the month. Questions for discussion in this department are announced once a month.

For the best and most practical answer to any one of these questions we will give a prize of \$5.00. To the second best a subscription to the FORTNIGHTLY for the year. The answers must be short, no one answer to contain more than four hundred words. We shall publish the substance of such of the answers as seem most likely to prove interesting to our readers.

Only subscribers to the FORTNIGHTLY will be recognized as competing (although we shall be pleased to hear from others who have ideas to suggest), and all persons known to be engaged in medical journalism are disqualified. Prizes will not be awarded to the same person more than once each year. Every answer must be accompanied by the writer's full name and address.

ON the evening of March 1st a dinner was given to Drs. Corlett and Brayton, who were in the city as the guests of the St. Louis Medical Society, at the Mercantile Club. Dr. O. F. Ball presided.

THE ST. LOUIS MEDICAL SOCIETY.—A meeting of more than usual interest in the annals of our local society was that held on the evening of March 1st. In view of the great prevalence of smallpox throughout the country, a scourge which is not neglecting St. Louis, it seemed wise to devote an evening to this disease. That the meeting might be one of great advantage the committee invited Drs. Wm. Thos. Corlett, of Cleveland, and A. W. Brayton, of Indianapolis, to address the Society. Thanks to these two authorities the evening was one of exceptional interest to all present.

DR. SANDER CELEBRATES HIS EIGHTIETH BIRTHDAY.—Dr. Enno Sander, he of Garrod Spa fame, had another birthday on the 26th of February, his eightieth, and he is still a younger man than many are at fifty. To celebrate the event a number of his pharmaceutical friends gave him an elaborate banquet at Faust's. The toasts were: "Our Guest," by Henry M. Whelpley; "The Teacher and Pupil," by Prof. Otto A. Wall, Sr.; "Honor to Whom Honor Is Due," by Prof. Henry T. Rohlfing; "The Pharmacist of Old," Christian F. G. Meyer, Sr.; "Continued Honors," by William H. Lamont; "The Pharmacist of Today," Otto F. Claus; "His Absent Friends," Prof. James M. Good. Albert E. Ebert, president and historian of the Chicago Druggists' Association, was toastmaster,

The Reviewer's Table.

Books, Reprints, and Instruments for this department, should be sent to the Editors, St. Louis.



A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. For Students and Physicians. By Charles E. Simon, M.D., of Baltimore, Author of Simon's Clinical Diagnosis, etc. One octavo volume of 452 pages. Philadelphia: Lea Brothers & Co. (Cloth, \$3.25 net).

Physiological chemistry has made very decided and valuable advances during the past few years. Advances which appeal to the student interested in understanding the wonders of the human body, as well as appealing to the essentially practical knowledge necessary to an understanding of the life processes in health and disease. Simon in this volume gives an exhaustive and classical review of the subject, he discusses origin and chemical nature of foods, the products of their decomposition; the processes of digestion, assimilation; the elementary tissues of the organs of the body; their relationship, etc., to physiological function. The laboratory feature of the subject is especially thorough and in keeping with Simon's well established reputation as a teacher and investigator. The book is a deserving companion work to "Simon's Clinical Diagnosis," and like it will live to become a standard and recognized text-book for students and a superb guide for the thoughtful student physician who wishes to delve into the intricacies of physiological chemistry. Simon has honored American medicine in his pioneer work in this field—a field indeed, which heretofore, has been occupied by foreign authors. We congratulate Simon, his publishers and American medicine on the publication of this most excellent book.

F. P. N.



DOSE-BOOK AND MANUAL OF PRESCRIPTION-WRITING; with a List of the Official Drugs and Preparations, and the more important Newer Remedies. By E. Q. Thornton, M.D., Demonstrator of Therapeutics, Jefferson Medical College, Philadelphia. Second Edition, Revised and Enlarged. Octavo, 362 pages, illustrated. Philadelphia and London: W. B. Saunders & Company, 1901. (Bound in flexible leather, \$2.00 net.)

The volume will prove of value to the practitioner of many years' standing, for purposes of reference, as well as a text-book for the student. In the revision additions have been made to the chapters on "Prescription-Writing" and "Incompatibles," and references have been introduced in the text to the newer curative sera, organic extracts, synthetic compounds, and vegetable drugs. To the Appendix, chapters upon Synonyms and Poisons and their antidotes have been added. As in the former edition this volume will be a valuable work of reference for the practitioner, full of practical suggestions. To the student such a book is indispensable. Prescription writing with such a guide will not become a lost art, but, on the contrary, will become a credit to scientific medicine and applied therapeutics.

STUDIES IN THE PSYCHOLOGY OF SEX: SEXUAL INVERSION. By Havelock Ellis, L.S.A. (England); Fellow of the Medico-Legal Society of New York and the Anthropological Society of Berlin. "Sexual Inversion" is second volume in the series. Pages 272. Philadelphia, Pa.: F. A. Davis Co., Publishers, 1914-16 Cherry street. (Extra Cloth \$2.00 net.)

Though the preface of the work informs us that it is in its second edition this is the first to reach professional readers in America. The first edition was suppressed in London shortly after its publication, by the authorities, who were blind to the imperative need of the profession being enlightened on this subject, which has so great bearing on the mental and physical health of the people of all nations. Some months since we reviewed the first volume of the series, this being the second of five, the present volume continues the subject, dealing with the various phases of homosexuality. The text is remarkably clean and is purely scientific. Investigators along this line are urging a wider study of the subject on the part of physicians and an intelligent treatment of these unfortunates, the case reports published in this and other similar works would indicate that the condition is seldom recognized and treated in early youth, when conditions might be favorable for a complete cure. It seems the duty of the profession to lend a helping hand to those who are struggling against an impulse beyond their power to control, and which leads to physical and moral degradation. Every physician should thoughtfully read these studies. H.



ESSENTIALS OF PHYSIOLOGY. Prepared especially for Students of medicine; and arranged with questions following each chapter. By Sidney P. Budgett, M. D., Professor of Physiology, Medical Department of Washington University, St. Louis. 16mo volume of 233 pages, finely illustrated with many full-page half-tones. Philadelphia and London: W. B. Saunders & Co., 1901. (Cloth, \$1.00 net.)

This is an entirely new work and a worthy accession to Saunders' excellent series of Question-Compends. It aims to furnish material with which students may lay a foundation for later amplification, and to serve as an aid to an intelligent consultation of the more elaborate text-book. The subject of physiology is covered completely, and, the author of the work being a teacher of wide experience, the salient points are particularly emphasized. An important feature is the series of well-selected questions following each chapter, summarizing what has previously been read, and at the same time serving to fix the essential facts in the mind. Nearly all the illustrations are full-page half-tones, and have been selected with especial thought of the student's needs. In every way the work is all that could be desired as a student's aid. That the volume comes from the pen of a St. Louis teacher is a matter which will interest many of our readers, many of whom have known Dr. Budgett in the class-room and through professional association,

H.

SYPHILIS AND THE VENEREAL DISEASES. Second Edition, Revised and greatly enlarged. By James Nevins Hyde, M. D., Professor of Skin and Venereal Diseases, and Frank H. Montgomery, M.D., Associate Professor of Skin, Genito-Urinary and Venereal Diseases in Rush Medical College Chicago, Ill. Octavo, 594 pages, profusely illustrated. Philadelphia and London: W. B. Saunders & Co. (Cloth, \$4.00 net.)

Through an oversight we have failed to call attention to this very excellent work longer than we would purposely have done; it has been on the market since last fall, and is probably in the hands of many of our readers now. In revising the work the editors have rewritten a considerable portion of the text, notably the section on gonorrhea, and have made numerous additions which have greatly increased its value. With the same purpose a number of new illustrations have been introduced, many of these are done in colors and have made this feature one of exceptional excellence. We would commend the volume to students and practitioners who need an up-to-date work on this subject. H.



A MANUAL OF OPHTHALMOLOGY. For Students and General Practitioners. By J. E. Jennings, M.D., Author of "Color-vision and Color-blindness," a practical manual for Railroad Surgeons; formerly clinical Assistant Royal London Ophthalmic Hospital, London; Editor Department of Ophthalmology, "The Medical Fortnightly," etc. With 95 Illustrations and 1 Colored Plate. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street. 1902. (Price, \$1.50.)

We take pleasure in calling the attention of our readers to this Manual of Ophthalmoscopy, the work of one of our Department Editors. The chapter on "the use of the Ophthalmoscope" appeared originally in the Fortnightly. In the preface Dr. Jennings points out the great value of the ophthalmoscope to the general practitioner. It not only reveals disease of the background of the eye, but from certain characteristic changes found there, is often the means of first detecting many serious general diseases the presence of which up to that time may not have been suspected. He also calls attention to the fact that there is no small manual of ophthalmoscopy adequately illustrated, published in this country or Europe, so there is great need for a small work which would aid the beginner in obtaining a practical knowledge of the subject. The text is systematically arranged in nine chapters, giving the history and theory of the ophthalmoscope, various methods of examination, the appearances of the normal fundus, the various congenital anomalies, and finally the changes which are found in disease of the media, choroid, retina, retinal vessels and optic nerve. The description of each disease is arranged compactly under the sub-headings of Etiology, Pathology, Subjective Symptoms, Ophthalmoscopic Appearances, Diagnosis, Prognosis and Treatment. The text is beautifully illustrated with a colored frontispiece and a large number of original black and white drawings. These were selected with the view of fixing in the mind a typical picture of the most important conditions met with in the ordinary run of practice.

A LABORATORY HANDBOOK OF PHYSIOLOGIC CHEMISTRY AND URINE-EXAMINATION. By Chas. G. L. Wolf, M.D., Instructor in Physiologic Chemistry, Cornell University Medical College, New York. 12mo volume of 190 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. (Cloth, \$1.25 net.)

The object of this book is to supply to students and practitioners of medicine a guide to a course in physiologic chemistry and the examination of the urine and the contents of the stomach. The first part of the book is taken up with simple exercises in physiologic chemistry, which will give an elementary insight into the chemical side of physiologic processes. In the part of the book which deals with the urine and the gastric contents, no tests have been given which do not rest on a good chemical foundation. The aim has been to give as few tests as possible, and these to be chosen for their suitability to purely clinical needs. No operations are described which have not undergone a thorough trial with students in the laboratory. It is very reliable desk companion, which while not supplanting the larger volumes, will be of special help to the student in his under-graduate work and the physician as a handy helpmate for his laboratory.



AN INTERNATIONAL SYSTEM OF ELECTRO-THERAPEUTICS. For Students, General Practitioners and Specialists. By Numerous Associated Authors. Edited by Horatio R. Bigelow, M.D., Author of "Gynecological Electro-Therapeutics," and "Familiar Talks on Electricity and Batteries." Second edition. Revised and brought up to date, with several New Departments of the Science. Edited by G. Betton Massey, M. D., Ex-President and Fellow of the American Electro-Therapeutic Association; Member of the American Medical Association; Author of "Conservative Gynecology and Electro-Therapeutics," etc. Thoroughly Illustrated. Royal Octavo. Pages 1147. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry street. (Prices net, delivered, extra cloth, \$6.00; sheep, \$7.00; half-russia, \$7.50.)

This magnificent system has done much to place electro-therapy in the position of increasing popularity, which is an evident fact today. The scope of electricity as a therapeutic agent is even now too little appreciated, the rank and file of the profession are too content to employ it for minor ailments only, and that in its simplest, not to say crudest forms, the reason for this lies in the fact that books on the subject were until within very recent years so technical as to make electro-therapy appear complicated and almost impossible to the busy practitioner. A little group of volumes, among which this stands with the very best, has placed electricity within the reach of all who would employ this valuable agent and use it intelligently. The present edition of this work gives, in addition to a complete revision of the first edition, four entirely new chapters, making the volume a complete exposition of the subject, practical, up-to-date and well worthy of the distribution which we believe it will have.

Original Department.

PAPERS for the Original Department should be in hand one month in advance, and contributed to THE MEDICAL FORTNIGHTLY exclusively. A liberal number of extra copies will be furnished authors, and reprints may be obtained at reasonable rates, if request accompanies the manuscript. Engravings from photographs furnished free.

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The Present Status of Antitoxin in the Treatment of Diphtheria.

BY FRANK PARSONS NORBURY, M. D.,

JACKSONVILLE, ILL.

Physician to Passavant Memorial Hospital; Consulting Physician to Illinois Institution for the Education of the Blind; Physician-in-Chief and Superintendent Maplewood Sanatorium for Nervous and Mental Diseases.

Read before the Morgan County Medical Society, January 7, 1902.

TODAY the clear cut results of treatment of diphtheria by modern methods are, to the unprejudiced, sufficient vindication that antitoxin has won for itself a permanent place in applied therapeutics. An evidence, too, of the triumph of science over empiricism, and a testimonial to the indefatigable laboratory worker, who patiently studies the forces of Nature at work in her own laboratories, trying to thwart the ravages of disease.

Clinical bacteriology has, within the last decade, studied the battle going on between the toxins of the infectious diseases upon the one side and "the human animal aided by the antitoxins" upon the other. The observation of this ever interesting contest has afforded the opportunity for the advent of one of the greatest achievements of modern therapeutics—serum therapy—the use of the products of the bacteriological growths in the animal organism. It is not necessary for me to review step by step the development of serum therapy since Behring announced his diphtheria antitoxin, but it is necessary in order to give the subject under consideration the full measure of usefulness, for me to briefly state the theory upon which this modern practice is established.

Wood states the proposition as follows:

"It is now known that many, and probably all pathogenic germs produce in the animal organism two classes of substances, capable of violently affecting nutrition, which substances are believed by chemists to be of albuminous nature. To one class has been given the name toxin, to the other that of antitoxin. The toxin is the substance produced by the bacteria beneficial to the bacteria themselves, whilst the antitoxin although produced by the bacteria is hostile to them."

The toxin locally is a poison, and its constitutional effects are those of a poison. All toxins produce lesions at the point of entrance, some very slight, while others, like the diphtheria bacillus, cause local destruction of tissue, or at least local weakness of tissues that with the growth of bacilli tissue resistance is lost, and the systemic invasion follows.

"An antitoxin is the substance present in normal blood of animals or artificially placed there which neutralizes the toxins produced by bacteria. An antitoxin is specific in its effects on poisons; that is it acts only or at least chiefly, upon the toxins produced by one species of organisms." (Park.)

Different antitoxins are produced by different cells, thus explaining why the animal immune to diphtheria may die of tetanus. The blood of the horse is normally antitoxic to diphtheria bacillus, but not so with tetanus.

The manner in which diphtheria antitoxin acts is yet unknown, but one thing is certain, and that is, it is destructive to the toxin of the diphtheria bacillus, but not to organism itself, although it prevents propagation. Cobbett believes there is direct action of the antitoxin upon the toxin, and Park says the facts now known indicate that antitoxins enter into direct chemical combinations with their respective toxins—a combination which is, perhaps, not comparable to that of an acid with an alkali; for, as we have seen, it is a much slower one, but one which possibly—as Ehrlich has suggested—more closely resembles the formation of a double salt. Some facts seem to indicate that the antitoxin has a stronger affinity for toxin than the toxin for the cells. Many points are still far from clear as to the manner in which both toxins and antitoxins act. Sufficient is known, however, to establish without doubt, the belief that Nature in some way elaborates in the body an antidotal poison (an antitoxin) to the toxin metabolic products of the bacillus.

The study of Nature's process gave rise to the generation of antitoxic without the human body and the horse is selected to produce the diphtheria antitoxin, because of his natural immunity to the disease. However, this natural immunity is not in itself sufficient to protect or immunize against the diphtheria toxin, and so to meet the requirements of practice, the modern methods of manufacturing antitoxin of greater immunizing power have been evolved.

It was my privilege in September to visit the laboratories of Parke, Davis & Co., in Detroit, where I saw the process of production of diphtheria antitoxin. Doubtless, you are all familiar with it, but as it was intensely interesting to me, a valuable object lesson and one of increasing

value in helping me to understand the horrors of the recent St. Louis experiences with infected serum. To begin with, none but strong, young healthy horses are selected for the purpose of manufacture of serum. Every horse is tested repeatedly to ascertain his condition of health. The horses receive the very best of care under hygienic conditions, which insures cleanliness and perfect health. The technique of serum production is about as follows:

Strong diphtheria toxin is used; it is derived from a virulent culture—thoroughly tested by culture tests and the microscope; then sterilized and tested for strength by the guinea-pig. The horse is injected with a definite amount of toxin—an amount sufficient to kill, say 10,000 guinea-pigs of definite weight. Reaction with fever follows this injection, after the fever subsides, which is within five days, the injection is repeated—a larger definite dose is given. These injections are repeated—the dose of the toxins being increased until at the end of six to eight weeks about twenty times the original dose is given at one injection. At the end of three to five months, if every step in the process has been satisfactory, the horse is ready to begin furnishing serum, and will continue to do so for many months to come if the toxins are still injected, for the antitoxic properties are pronounced. I should have said that I understand that antitoxin is frequently injected into the horse with the first few injections of the toxin; this further immunizes the horse and prevents severe reaction. A rise above 3 degrees F. in temperature reaction is sufficient to question the use of the product from any horse. The strength of antitoxic serum at three months is from 200 to 800 units, per cubic centimeter. A unit is the amount of serum required to save a 300 grain guinea-pig from death from ten times the smallest fatal dose of diphtheria toxin.

The antitoxin placed on the market runs from 100 to 2000, 3000 units per cubic centimeter. Before placing the serum upon the market it is tested to be sure of its purity and strength—purity, so that no such experience as occurred in St. Louis can be traced to the serum. Tetanus is tested for, with the guinea-pig, and the serum then properly sterilized is placed in receptacles for the market. It is of interest to note that American manufacturers who have given careful scientific consideration to the manufacture of serum have met with success, and their products are standard the world over. Parke, Davis & Co., and Mulford lead in this country, and we feel justified in saying that implicit confidence can be placed in the products of their manufacture.

INDICATIONS FOR USE OF ANTITOXIN.

It is needless for me to review the clinical history of diphtheria, this, alas, is a too familiar picture to us all. No one in this day and age, except the Medical Brief and the submerged element of the profession, who follow its fallacious doctrines, doubts the clinical bacteriology of this disease.

Treatment is always based on the diagnosis of the disease, and this is especially true with diphtheria where time is an important element. The clinical diagnosis should be our guide, and even in doubtful cases where differentiation is difficult, it is far better that we at once use antitoxin,

instead of waiting for further diagnostic evidence. The surest guide in diagnosis of diphtheria associated with the clinical evidences, is the bacteriological examination which demonstrates the presence of Klebs-Loeffer bacillus. It is always safe to presume that we have to deal with diphtheria when the very smallest patch of false membrane appears on the tonsil, palate, pharynx or uvula. It is not advisable that we wait for the laboratory examination to confirm our diagnosis before using antitoxin, for in so doing we lose valuable time, and especially is this true, where the patient is remote from laboratory facilities for bacteriological demonstration. It is best to use antitoxin first, for by following such practice, if the disease proves to be diphtheria, we have used our most potent remedial agent when it will do the most good, and if diphtheria does not exist, no harm has been done to the patient, Lenox Browne and other writers to the contrary notwithstanding.

THE MODE OF USING ANTITOXIN.

Antitoxin must be given subcutaneously, and the technic of its application is very simple, and is being simplified by the introduction of uncomplicated apparatus. The location most suitable for the introduction of the serum is the back, near the scapula. The site is cleansed thoroughly—made as nearly aseptic as possible. The needle is inserted preferably in a downward direction parallel with the margin of the scapula. Slowly the serum is injected, and when completed the needle is withdrawn and the puncture closed with collodion, or iodoform gauze and collodion. No danger results from such aseptic precautions. In forty injections which I have given I have never had an abscess or other local disturbance.

THE EFFECTS OF ANTITOXIN.

The effects are: First, to prevent the increase of the local disease process; second, to mitigate the local swelling and hyperemia, and lastly, to overcome the constitutional effects of the toxins. These results follow when the curative dose of the antitoxin neutralizes the specific poisons found in the system. It is, therefore, of great importance that we consider that the initial dose must be sufficient to overwhelm the toxic effects of the disease, for if this dose does not have such an effect, then, as Taylor says, "the disease progresses in proportion to the degree in which the dose has fallen short, or no effect at all may be noticed. The repetition of the dose, or its increase, is then instantly indicated, and the shorter the time which elapses before such repetition is made the better will be the results."

The question of dosage then is of importance and just here is a question which has been prominently before the profession during the past year. There is a tendency for larger initial doses and more frequent repetitions of large doses and clinical results do justify the practice. The extent of the disease and not the age or size of the patient should be our guide in giving the initial dose, and also its repetition. Park, in the most recent contribution to the literature on this subject, recommends the following dosage:

Very mild cases, 1000 to 1500 (units) first dose.

Moderately severe cases, 2000 to 3000 units.

Very severe cases 4000 to 5000 units.

Laryngeal cases, according to severity, 2000 to 5000 units.

For children under one year of age one-third less than for older children and adults. I have given, and with good results, 3000 units as an initial dose in a child under seven years of age, basing my dosage wholly on the extent of the local symptoms. We must always bear in mind that the duration of the disease should figure as the prime essential factor in determining the initial dose, for it will require a more powerful dose when given late to overcome the disease, than when given early. Let me again say that antitoxin must be given early, it is inhuman to temporize or to wait, and nowhere in practice do we achieve such striking and helpful effects by prompt treatment than in the early use of diphtheria antitoxin. After the initial dose has been determined upon, it should be given at once and its effects noted. If within a few hours (Park says twelve), no effects are noted, a second dose larger than the first should be given. It is good practice to follow increasing dosage, for the effects are more rapid and more beneficial. In an ordinary case, where the initial dose has been at least 2000 units, it is rare that more than two doses are given. I have seen good results with but one dose of 2000 units. The later the antitoxin is used the greater must be the initial dose. I gave in one case 3000 units seen in the second stage of the disease, and in twelve hours repeated the dose, and in eighteen hours gave 4000 units—the patient made a good recovery. In a case of great urgency in a child having the vulvo-vaginal form of the disease, I gave 8000 units in twenty-four hours with the satisfaction of seeing all the membrane on the vulva, in the vagina and rectum disappear, but the infection reached the peritoneum and death resulted from peritonitis in thirty hours from the first appearance of the membrane.

We frequently find mixed infection as a complication in this disease—thus in one case commencing as a quinsy sore throat (suppurative tonsillitis) diphtheria infection appeared on the third day and death followed in twenty-four hours from laryngeal stenosis—the child died while Drs. Black, Bowe and myself were attempting intubation. I have noted several cases with streptococcus as a mixed infection, one case in particular with laboratory confirmation, made a recovery, but only after prolonged local treatment and liberal use of antitoxin, strychnia and brandy.

In my forty cases I have had three deaths showing a mortality that is in keeping with the experience of others. It is a fact which cannot be disputed, and which intelligent inquiry will sustain that the introduction of diphtheria antitoxin has reduced the mortality of this disease enormously. "When antitoxin is given in sufficient amount shortly after the onset of the first symptoms, the mortality is less than four per cent. It is rare for an uncomplicated case of diphtheria (thus treated) to die" (Park).

Again, let me say, give antitoxin early, and let the initial dose be guided by the condition of the patient. It must be remembered that diphtheria is a local disease. The Klebs-Loeffer bacillus may be found in all

cases of diphtheria in the membrane or in the mouth. It lives largely on the surface of the membrane, rarely penetrating the tissue. Levy and Klemperer say that "in bodies of patients suffering from diphtheria the bacillus has never been found at any other place than in the false membrane, and especially never in the blood." Diphtheria can be arrested without much mischief being done, but if allowed to go on, the local process, the necrosis of the epithelium mucosa, is due to the presence of the bacillus; the resulting constitutional symptoms, such as fever, palsies, etc., as due to the toxic infection—the toxic metabolic products of the bacillus." These toxins produce deleterious results upon the internal organs—damage them beyond repair, for antitoxin exerts no curative effect upon the damages done tissue by the diphtheria toxins. The antitoxin will prevent such damage, if given in sufficient doses, it will arrest the progress of such destructive effects when inaugurated by diphtheria toxins, but it can not repair damage already done. This fact again emphasizes early treatment in sufficient doses, and this applies especially to the palsies which follow from the effects of toxins on nervous tissue.

Antitoxin exerts no influence whatever upon the nervous phenomena. In fact antitoxin has not materially affected the frequency of occurrence of paralysis only in its prevention by early use. The experiments of Ransom show that it can be averted by large doses of antitoxin given within the first twenty-four hours. In my series of cases I had two complicated with post-diphtheritic paralysis, in one, a school girl seen on the second day of the disease, but 1500 units had been given, but with decided improvement in local conditions. In ten days paralysis of the palate followed, which readily yielded to treatment by large doses of strychnia. The other case, an adult, followed a very light attack of diphtheria, which yielded readily to antitoxin—2000 units at one dose, paralysis developed on the sixth day—lasted five days, treated by strychnia. Lesions of the heart and kidney can not be attributed to the use of antitoxin, according to Counselman, Mallory and Pearce, it can be said beyond doubt, that visceral complications are produced by actual organic changes in the tissues brought about by necrosis producing properties of the toxins of diphtheria.

IMMUNITY.

The observations of municipal boards of health where careful notation is made of all cases of diphtheria, antitoxin has immunizing powers. So much so in fact, that with its use, associated with isolation and good hygiene, an epidemic can be prevented. It is well to insist upon local treatment of the throat, too, during such period of isolation. The immunizing dose is about 500 units, and its effects last on an average of two to three weeks.

In conclusion, I would speak of the recent sad experiences with antitoxin in St. Louis—one of the most appalling disasters that we as a profession are called upon to consider and discuss. It has been shown by the report of the commission ordered by the coroner to investigate this disaster, that impure antitoxin, made so by the unscientific, unhygienic methods of manufacture, is to blame for the deaths. This fact, should impress

us with the importance of using pure certified antitoxin. Further, we should by all fair means endeavor to instruct the laity regarding the triumphs and advantages of antitoxin treatment, and thus try to remove this blot upon serum therapy, which the St. Louis experience has caused. The people must and should be instructed, and it falls upon us as a profession to this duty.



Laceration of the Cervix Uteri (Beyea, the Philadelphia Medical Journal, September 28, 1901).—Pathology.—The apparently raw surface of the lacerated cervix is covered by cylindrical ciliated epithelium, and is in no sense an ulceration. The eversion of the anterior and posterior lips, due to a tear during labor expose the cervical mucosa to friction and pressure against the posterior vaginal wall. The surface epithelium being constantly irritated undergoes hypertrophy and hyperplasia of the mucosa grows over the lacerated surface often on to the portio vaginalis. The rolling out of the lips of the cervix causes a continuous passive hyperemia from pressure, with a consequent swelling and hypertrophy of the glandular and stroma tissue and cystic changes. The racemose glands of the cervix, first, become inflamed, then proliferated, the orifice is often occluded, and the whole cervix is studded with cysts. Also a small round-celled infiltration exists. The blood vessels show a hyaline degeneration. In very chronic cases, localized or diffuse, areas of cicatricial fibrous connective tissue are seen. Only rarely is an erosion present, for that implies a loss of substance. Often subinvolution follows laceration of the cervix, accompanied by glandular endometritis, retrodisplacement, general pelvic congestion and sometimes secondary chronic catarrhal salpingitis, oophoritis and lymphadenitis. The symptoms of laceration are backache, sideache, headache, leucorrhea, menorrhagia, sometimes dysmenorrhea, neuralgia in every part of the body and reflex nervous symptoms. The contraindication for operation is the existence of any pelvic inflammation outside of the uterus. Before operation, local treatment of the cervix, consisting of opening cysts, painting with Churchill's iodine, supporting with ichthyol and glycerine tampons, and douching with 1½ to 2 gallons of hot water, night and morning, is very necessary to the successful healing. In operating it is necessary to remove all cicatricial tissue, taking care not to remove too much from the vaginal aspect of the cervix. The sutures must be accurately and evenly placed. The needle should describe a complete circle when introduced through both lips, and a large amount of tissue underlying the denudation should be included. The needle should not emerge on a denuded surface. The suture should enter upon the vaginal aspect of the cervix, and emerge on the edge or slightly within the mucus membrane slip left for the cervical canal. The stitches should be removed at the end of two weeks.

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Diseases of the Stomach.

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Symptomatology.—The first symptoms of cancer of the stomach cannot be distinguished from those of functional dyspepsia or the early stage of chronic gastritis. The disease is so insidious that the early symptoms are not alarming. So obscure and uncertain are its first warnings that both patient and physician may be deceived until too late they are aroused to a full apprehension of the terrible reality. In spite of improved methods of diagnosis, the disease is generally well advanced before the physician can be sure of the presence of this fatal malady. Sometimes it is not discovered until just before death; and sometimes not until the autopsy reveals the character of the disease.

The earliest symptoms are seldom observed by the physician. They give such slight disturbance that most patients do not feel the need of a physician. There are occasional eructations of gas, slight indigestions, and perversions of appetite. Sometimes the appetite is good; sometimes impaired, especially for certain articles of diet, as meat; sometimes capricious. Sometimes there is slight nausea. The tongue may be slightly coated, whitish, or brownish or yellowish, and there may be an unpleasant taste in the mouth, partly due to diminished secretion of saliva and the accumulation of epithelial and other debris, which undergoing decomposition make the odor of the breath heavy or offensive. The conjunctiva may be dull, but sometimes are clear and bright, as in tuberculosis, or pale as in anemia. The mucous membranes often show no change, but sometimes have a dull, ashen, or anemic appearance. The skin is likewise frequently normal; however, it may sometimes early in the disease become pale, sallow or dull; dry harsh and furfuraceous. The bowels are slightly changed from the usual habit, but there is a tendency to constipation, which results probably from diminished secretion, or is due to morbid products carried from the stomach into the intestine. Asthenia or loss of strength and ambition may be noticed, and the weight may decrease.

From these initial signs to those of a well-marked and severe case there are all grades of symptoms and suffering. As the case progresses, sometimes slowly and sometimes rapidly the various symptoms become

more marked, some being more pronounced in one case, and others in another.

The patient usually consults the physician first on account of persistent and distressing symptoms of indigestion. The eructation of gas or "belching of wind" becomes annoying. It is accompanied by pyrosis; raising of sour or disagreeably tasting liquids; heartburn; offensive odors in the breath, or gas raised from the stomach. In fact nearly the whole list of symptoms occurring in functional dyspepsia or chronic gastritis may be found occurring with more or less severity in carcinoma of the stomach. Where the growth is located near the pylorus, and partial or total obstruction occurs with accompanying dilatation, the disturbances of digestion are very marked; fermentations, distention, eructations, and all the symptom of gastrectasis are present in such cases. Impairment of appetite is common and increases to a dislike, and often to a disgust of food. The appetite for meat is generally lost before the change is so pronounced in regard to other classes of food. The disagreeable taste in the mouth is sometimes partly responsible for the anorexia. The tongue may be clean, though it is generally coated. The edges may be clean and the body coated and the papilla may project like berries, but the tongue is usually coated with a heavy, thick, tenacious fur, especially mornings. This in part gives the flat, pasty, bitter or sour taste in the mouth. The saliva may be increased. While the appetite may not be impaired in some patients during the entire course of the disease, the usual condition is that it is first modified, then capricious, then impaired, finally lost, as nausea and vomiting supervene. The discomfort in the stomach, by this time has become pain, and the vomit may contain altered blood. Nausea is more frequent than in simple ulcer of the stomach, and hiccough is often very annoying.

Vomiting may well be considered one of the most important symptoms, for it is estimated to be present in 80 to 88 per cent of all cases. Frequently, though not always, it is one of the early symptoms. Vomiting occurs especially in cases of cancer of the orifices. Carcinoma affecting the pylorus is more frequently the cause of this symptom than that form which involves the cardia alone. This is due to the fact that a majority of cancerous tumors of the stomach occur at or near the pylorus. However, it must not be thought that this is the only difference. It will be observed that in cancer of the pylorus the quantity of the ejecta is actually greater than when the growth occurs at the cardia. The cause of this is readily understood when we bear in mind that the secretions of the stomach add to the quantity of the vomit in pyloric cancer, while in obstruction of the cardia the food is sooner rejected, and is augmented only by the amount of saliva swallowed. When the tumor is located at the pylorus the vomiting usually occurs some hours after eating, but sometimes may appear so soon as to make this element of diagnosis doubtful. Something depends upon the degree of dilatation of the stomach. In cases where there is great enlargement sometimes several days elapse before vomiting occurs, and then the amount is very large. In cases of cancer of the cardia occasionally we meet with considerable dilatation of the esophagus, in which

case vomiting may be somewhat delayed. Rarely we meet with cases who will vomit two or three times during a meal. This form is caused in part by the spasmodic contraction of the muscular layer of the esophagus, and partly by the irritation of the mucous membrane. Dysphagia may be an early symptom in these cases, and the use of the esophageal sound is a desirable means of diagnosis. This and other symptoms are sometimes ameliorated, and physician and patient become hopeful that the case is better. This is sometimes due to ulceration or breaking down of the tumor, allowing the food to pass through the reopened canal in the usual way. This temporary subsidence in the acute symptoms is only a foreboding of the final disaster, which is rapidly approaching. The cancerous masses or groups of cells so frequently found in the wash-water when the stomach-tube is used for lavage are seldom, if ever, seen in the matters vomited. The character of the ejecta is omenous. Hemorrhage, according to some authors, seldom, if ever, occurs profusely. It is usually present in comparatively small amount, however, and the appearance of the blood so altered as to show the dark-brown color often spoken of as coffee-grounds vomit. It is estimated that this form of black vomit occurs in about half the cases. The increase of pain and the bad taste in the mouth increase the vomiting. The increase in the retching may increase the hemorrhage. Often there is very little discoloration of the ejecta from this element. The vomited matter may consist of mucous, food debris, epithelium, bright-red particles and micro-organisms, in addition to the coffee-ground material already mentioned. The micro-organisms may represent many forms, and assume the unicellular, diplococcus, streptococcus or other form. The sediment in the vomited material often resembles the sediment in beef-soup or beef-tea before it is filtered. If perforation have occurred into the intestine a fecal odor may be imparted to the vomit. The length of time the blood has remained in the stomach will determine to a degree the extent of decomposition it has undergone and the modification in color it has suffered. Although blood remains in the stomach longer in this disease than in others the changes which produce the coffee-ground vomit are not entirely confined to cancer. In follicular and small ulcers of the stomach and in yellow fever, severe malarial fever, acute congestions, and possibly some other conditions, the same appearance marks the vomit. The microscope will frequently discover blood corpuscles when they cannot be discovered by the eye, and when there is so little of the black or colored vomit that blood may not be suspected to be present. If doubt still exists acetic acid may be applied to form hemin crystals, or the spectroscope may be employed. Glacial acetic acid in excess, and a few grains of sodium chloride are added to the stomach contents or vomit, and boiled in a test-tube. If blood pigment is present, dark-brown, rhombic crystals of hemin will be deposited, and may be seen by the microscope. Lebert states that considerable hemorrhage occurs in 12 per cent of the cases, and may be sufficient in amount to cause death. Profuse hemorrhage is most likely to occur late in the course of the disease, and when the tumor is at the pylorus or on the lesser curvature.

The vomited matter should always be examined for free hydrochloric acid. If this acid is present there is reason to suspect that cancer may not

be present, as HCl is usually absent from the stomach contents in these cases. One examination is not sufficient alone to determine this matter, and a series of tests in the ordinary method should be made to decide the question and aid in arriving at a correct diagnosis. It must be remembered, also, that HCl is absent or diminished in some other conditions of the stomach, as atrophy and chronic gastritis.

Pain is a prominent symptom, and occurs early in the history of the disease. According to Lebert it is present in 75 per cent of the cases. Others say 90 to 95 per cent. It is frequently absent in old people. The location of the distress may be between the scapulae, in which case Brinton teaches that the growth is situated on the lesser curvature. The pain is usually located at the epigastrium, but it may be felt in the shoulders, in the loins, or in the hypochondria. In cancer of the cardia the pain is referred to the xiphoid cartilage. The location of the pain is not an infallible guide to the position of the growth. There is great variety in the character and intensity of the pain. In one case it occurs paroxysmally, as after eating, is dull, aching and heavy. In another it begins suddenly after a meal, and is almost continuous until death. While these variations exist, ordinarily the pain of cancer of the stomach is burning, gnawing, boring, lancinating, but sometimes takes the form of a severe gastralgia. The pain may be aggravated by taking food, although the increase may not be observed for sometime after eating, perhaps, usually at about the time HCl ought to be abundant.

The pain may be somewhat relieved by vomiting, but is not removed. The distress is usually constant, and may be, therefore, independent of the taking of food. It should be stated, also, that at times the taking of food does not increase the pain. Generally there is tenderness on pressure over the epigastrium or over the seat of the neoplasm. In those cases in which the pain is increased just before vomiting, it is usually ameliorated after the stomach is emptied. In some cases the pressure of the food or its mechanical irritation seems to be the cause of the increase in pain and the effort at vomiting. I lately examined a case post-mortem, in which the pain during life was diffused over the entire epigastrium, and felt also between the scapulae; it was acute, lancinating, boring. The neoplasm was located on the lesser curvature, and the ulcerated surface involved an area two and a half by five inches on the anterior wall. Hiccough is sometimes distressing, especially late in the disease.

The most important symptom or sign from a diagnostic point of view is the discovery of a tumor in the region of the stomach. Examination by palpation should always be practiced in these cases, and, indeed, in all cases of gastric disease. In the early stages of the disease, when the growth is located on the posterior surface, on the lesser curvature, or at the fundus, one may not be able to discover a tumor unless it is very large or the stomach is displaced. If located at the cardia tumors cannot be detected at all. They are usually discovered if at the pylorus, even if covered with the lower edge of the liver, as not infrequently happens. They may be observed in about 80 per cent of all cases, but usually not until the case is well advanced, and often not until late in the disease. This

will not seem strange when it is remembered that the growth begins on or just under the inner or mucous surface of the viscus, and the organ itself is in part behind the lower edge of the ribs, especially in the region of the cardia and fundus. It is difficult to discover a tumor on the posterior wall of the stomach, except in thin or emaciated patients when the stomach is empty and the neoplasm of considerable size. When a tumor is discovered, then, it is most likely to be situated upon the anterior wall, the exposed part of the greater curvature, or at the pylorus. Other conditions sometimes prevail which render the discovery of a tumor difficult; the growth may protrude chiefly into the cavity of the stomach, or it may be a diffuse cancerous growth or infiltration, in which case a large area may be involved, and the physical sign is a distinct rigidity or resisting induration of the walls of the organ, not a tumor of definite outline; and this resistance is not always appreciable.

The tumor is usually felt in the epigastrium just to the right of the mesial line, or in the umbilical region. The pylorus lies just to the right of the median plane of the body, and here is where pyloric tumors will be felt if dislocation has not occurred. If obstruction and dilatation develop the tumor is generally found lower down in the abdomen, sometimes as low as the iliac region or the pubic bone. Occasionally they are found under the ribs to the left of the median line. It has been said that the pylorus is just to the right of the median line; but this holds only when the stomach is distended, or at least partly filled. When the organ is empty the position of the pyloric orifice is in the median line; but when distended it may extend two to two and a half inches to the right of that line. The position of the cardiac orifice is not variable. Its fixed position is behind the seventh costal cartilage near the sternum, and it is overlapped by the left lobe of the liver. The pyloric orifice is not fixed, but normally may be said to be on a level with the inner extremity of the right eighth costal cartilage. The discovery of a pyloric tumor lower than this level is common on account of the dilatation which generally accompanies cancerous growths in this locality. Tumors of the pylorus in the lower part of the abdomen are frequently mistaken for growths from other organs, until a careful examination reveals the great dilatation of the stomach, which produces the dislocation.

The facts just stated should be remembered when attempting to locate and distinguish tumors which have the appearance of being connected with the stomach. I was lately called to a case of persistent vomiting in an old man in whom a tumor was easily discovered in the region of the pylorus. Cancer of the stomach had been the diagnosis made. A careful examination revealed an aneurism of the aorta which was pressing upon the pyloric portion of the stomach and undoubtedly causing the vomiting, as no other symptom of gastric cancer existed; the stomach was normal in size the vomit was not characteristic, there was no pain and no hemorrhage had ever occurred. The percussion-note over a gastric tumor is that of dull tympany, usually. Changes or alterations in the fullness of the stomach or intestines may make a change in the character of the percussion-note and in the position of the tumor. Palpation should be performed with the

patient lying on the back and the knees drawn up so as to relax the abdominal muscles as much as possible. Some cases may require the knee-chest or standing position to be assumed. With all the care one is able to bestow upon an examination it is frequently difficult to determine whether a tumor is located in the stomach. Impacted feces in the colon have been mistaken for a cancer of the stomach. It is well to give a laxative in doubtful cases to remove all fecal accumulations.

The bowels are normal in only four or five per cent of the cases. The rule is constipation; but sometimes diarrhea exists, and often toward the close of the case it may be obstinate and distressing. If hemorrhage has occurred the stools are likely to be black. The diarrhea is sometimes an evidence of a catarrhal condition of the intestinal mucous membrane produced by the irritation of hard fecal masses or products of decomposition which have not been quickly carried away. If a gastro-intestinal fistula is formed the cancerous debris and products of fermentation in the stomach may be passed immediately into the intestines above or into the colon and produce irritation causing even henteric diarrhea.

The urine sometimes contains albumen, acetone and diacetic acid; and indican is often in excess. Peptonurea is not frequent, but is occasionally seen.

The skin is ordinarily dry and harsh, and has a peculiar sallow or anemic appearance—the cancerous cachexia. The approach of anemia is gradual, but this is one of the most constant symptoms. Not only is the hemoglobin greatly reduced, but the red corpuscles also are diminished in number, sometimes as low as 50 per cent; the relative, if not the actual, number of white corpuscles is increased, so that a degree of leucocytosis exists. The anemia in some cases approaches the pernicious type. Nucleated red corpuscles, poikilocytes and microcytes are found. In the method of production and in the fact that emaciation increases progressively with the anemia the condition here differs from pernicious anemia. The loss of strength seems out of proportion to the pathological condition, and a peculiar wrinkling of the skin and pinched features often marked by brownish spots indicate the progress of the disease. Anasarca and ascites results frequently from the same anemic condition; ascites may often be due to metastatic or secondary peritonitis. Under such circumstances anemic murmurs, palpitation and dyspnea are common and may be accompanied by increased weakness, with rapid and feeble pulse. The eyes sink in, the cheeks become prominent and the patient appears older than he is. Depression and melancholy may alternate with restlessness and excitement. Headaches, neuralgias, dizziness and tinnitus aurium may help to make the patient miserable.

The lungs, liver, intestines and other organs may be the seat of secondary growths, with characteristic symptoms. Perforation with its well-marked symptoms of pain and shock may occur. Acetonurea and uremia are occasionally complications in the later stages of the disease.

The temperature may be normal, not unfrequently it is subnormal; but it often happens that the fatal termination is heralded by an increase of temperature. The fever varies in degree and its course is irregular

(100.4 deg. to 102.2 deg., and rarely 104 deg. F.); and Ewald says it may assume a hectic character.

Certain complications are sometimes observed. Gall-stones are said sometimes to occur in conjunction with cancer of the stomach (Hughes). Jaundice may occur due to pressure of the growth, or some secondary growth exerted upon the bile ducts. Peritonitis, pleurisy, pericarditis with effusions occur from secondary growths. Tuberculosis and chronic nephritis may be present. Thrombi may produce painful or disastrous results. Chronic gastritis is a common complication, and often a precursor, apparently of this disease. Dilatation is a direct result of the growth in many cases, especially in the pyloric variety.

Diagnosis.—The most reliable symptoms upon which to base a general diagnosis are pain, vomiting, a tumor in the stomach and hemorrhage. A chemical diagnosis depends chiefly upon the absence of hydrochloric acid. Dilatation, particles of tumor in the wash water after lavage, or in the vomit, and emaciation are valuable aids in making a diagnosis.

The pain is gnawing, burning, lancinating, cutting, boring, constant. It is sometimes described as an ache, a dull pain, increased by eating, somewhat alleviated, but not entirely removed by vomiting. It is occasionally absent, especially in the aged. Vomiting is characteristic. If the tumor is at the cardia vomiting occurs very soon after a meal, and does not present the pathognomonic character. If the tumor is at the pylorus the vomiting may be delayed two or three hours or longer, and if the stomach is largely dilated it may not be emptied for two or three days. If the delay is great the quantity rejected from the stomach may be enormous. Vomiting does not remove, but may diminish pain. The matters vomited are various. Usually the vomit consists of mucus, broken down tissue, food and debris or fermentation products, coffee-grounds sediments, or a deposit resembling the dregs of unstrained beef soup or beef-tea. The most important feature of this is the discovery in the vomited matter (or in the wash water of lavage) the cancer cells or debris of morbid or broken-down tissue. A great variety of fungi, yeast cells, sarcinae, bacteria and variously formed cells and detritus, which go together to form what is recognized as the cancerous vomit. Not a single element of those just mentioned is sufficient, but the combination of many is needed to determine the cancerous nature of the stomach contents. I think with Ewald, that we cannot be sure of the cancerous nature of the disease from an examination of the vomited matter, unless we meet with concentrically stratified aggregations of cells, true cancer cell-nests.

As already stated, free hydrochloric acid is usually absent except in the irritative stages of the disease (Golding Bird), and diminishes in proportion to the patient's loss of strength. This condition likewise prevails in atrophy of the stomach, and a differential diagnosis must be made. The decreased quantity of HCl permits an increase in the organic acids, especially lactic acid (Boas). According to Boas lactic acid occurring in the stomach, not introduced with the food, occurs exclusively in cancer of this viscus; but he admits that cancers may occur without the presence of

this acid in excess. As a rule, however, the latter are cases in which hydrochloric acid occurs. Klemperer, Thayer, Rosenheim and others do not consider the presence of lactic acid pathognomonic.

The third important consideration in the diagnosis of gastric cancer is the presence of a tumor, particles of which are sometimes seen in the vomit, or in the wash-water if lavage has been used. Hemorrhage is an important sign of cancer when taken in connection with the vomiting, and the particular character which the ejected matters present. The presence in the stools of decomposed blood is to be remembered in this relation.

The symptoms which will aid in making a diagnosis may be briefly recapitulated as follows:

1. Pain, constant, gnawing, boring, burning.
2. Vomiting periodical coffee grounds material giving some relief from but not removing pain.
3. Tumor, discovered by hand or particles found in wash water.
4. Absence of hydrochloric acid and presence of lactic acid in the stomach contents.
5. Tumor, with dilatation, or with hematemesis.
6. Emaciation, with some or all of the foregoing symptoms.
7. Dyspepsia, continuing for a considerable time (six months to a year), with some or all of these symptoms.

A differential diagnosis must be made between cancer and some other diseases of the stomach.

Ulcer chronic gastric catarrh, and functional dyspepsia have been mistaken for this disease. Benign stenosis of the pylorus must be carefully eliminated in making a diagnosis. The long existence of this condition, the presence of hydrochloric acid and the absence of pain will be valuable aids in separating this from cancer of the stomach. The pains of gastralgia, locomotor ataxia and other neurotic conditions can be differentiated by studying the history of the case.

Prognosis.—These cases usually terminate fatally in one year from the beginning of the symptoms, and many are met which end in death in three or six months from the first appearance of active symptoms. Occasionally cases are seen which are prolonged to a year and a half or two years.

In cases supervening upon ulcer or chronic catarrh, dyspeptic symptoms may exist for a longer period than two years, but it is not usually possible to point to the time the pathological process becomes cancerous. Rarely cases terminate fatally in four or six weeks. The duration depends, in a general way, (1) upon the location, cancers occurring at the orifices running a more rapid course; (2) upon the variety of tumor, the medullary form growing more rapidly; (3) upon complications, as hemorrhage and ulceration, which may produce sudden death.

(TO BE CONTINUED.)

Monographs on Nervous Diseases

With Especial Reference to Hygiene, Nursing and Therapeutics.



Infantile Paralysis.

BY F. SAVARY PEARCE, M. D.,

PHILADELPHIA,

Professor of Nervous and Mental Diseases in the Medico-Chirurgical College of Philadelphia; Neurologist to the Philadelphia Hospital.

INFANTILE paralysis or antero-polio-myelitis is an acute inflammatory disease probably infectious, occurring more frequently in warm weather and in children under ten years of age. The onset is ushered in by high fever, nausea and vomiting, there may be slight delirium from the fever but seldom unconsciousness. The child is generally restless, and now complains of parasthesia of one or more extremities with considerable hyperesthesia when the member is handled. With this there may be some generalized tenderness of the deeper structures. At the end of twenty-four hours, the fever will have pretty well subsided, the patient now suffering no discomfort. It will be found at this stage that one of the extremities is greatly enfeebled, the sensation having returned to normal. The child can move the extremity but little if at all, the deep reflexes will be found wanting in the paralyzed limb. Within a few days, there may be pretty marked recovery of some of the muscles of the extremity, but others will be found to have remained permanently paralyzed. At the end of a fortnight or more, reaction of degeneration will be found to exist in the affected muscles, and the limb now begins to waste rapidly. In marked paralysis which is the more frequent, the patient will be unable to walk or only do so with great difficulty, there being a limpid halting gait if it can be at all accomplished. Or the paralysis may be localized to a few muscles permitting the foot to be turned in or out owing to this weakness, when it would be essential to apply some form of apparatus to correct the deformity. If the paralysis is of the upper extremity, the member will hang in limpid palsy by the side. The paralyzed extremities become, in any case, somewhat cyanosed, cold, and wasted. The general health of the child is remarkably well preserved. As the child comes to maturity, lateral curvature of the spine is very apt to develop owing to the disproportionate shortness of the lower extremity. In the case of paralysis of the upper extremity, the chest may be much smaller on the affected side, due to lack of exercise and muscular development. The intelligence of these children is generally precocious, since the enforced physical apathy probably produces a compensatory action of the psychic centers in the brain. It should also be stated, the sphincter muscles are seldom involved and that the somatic and vegetative functions remain quite normal. I have not observed that life was curtailed by infantile paralysis of monoplegic type, and have known a number of

cases live to sixty years of age. It should also be stated in support of the infectious nature of the diseases, no nervous heredity is not found in the family of the patient. The pathological condition is of an inflammatory lesion limited to the anterior horns of the gray matter of the spinal cord. Thus in the decussation of the multipolar cells, trophic disturbance as well as paralysis naturally follows in the extremity to which these neurons supply nutritions and motion. The absence of the deep reflexes and of the currents of reaction of degeneration, is due to this same defective lesion.

Treatment of infantile palsy is symptomatic; since regeneration of the damaged nerve cells cannot be, by medicine, re-established. We can, however, very much help the patient through massage and galvanism carried over prolonged periods (months); the younger the patient, the greater necessity for these measures in order to keep up as far as possible, the development of the wasted limb and to prevent contracture deformities as already stated. The protection of the surface should be very carefully guarded, especially in the palsied extremities. To this end wool underclothing should be worn and frequent bathing of the skin with 80 per cent alcohol or salt water, preferably sea water, should be given. The use of tonics, especially strychnia is the drug par excellence in those cases requiring general therapeutic measures; some authors have advised the hypodermic injection of strychnia into the paralyzed muscles in rare cases of localized palsy of individual groups of muscles.



The Mechanical or Combined Plastic and Mechanical Treatment of Retrodeviations of the Womb (Rosenwasser, American Journal of Surgery and Gynecology, November, 1901).—The writer wishes to emphasize the opinion that too many serious operations for retrodeviations are being performed where safer, simple and equally successful procedures would suffice. Of 116 patients treated for retroversion, 63 of the second and third degree were selected as proper subjects for purely mechanical treatment. They were treated by means of the pessary alone, or the necessary plastic operation was supplemented by a pessary. Of the 116, 11 were cured; 15 symptomatically cured; 26 improved; 11 not improved. From this experience Dr. Rosenwasser draws the following conclusions: 1. A retroverted womb uncomplicated by disease should be replaced and supported by a pessary. 2. Retroversion complicated by a diseased womb, or by impaired pelvic floor, the womb being movable, require preliminary plastic operation before using a pessary. 3. Suspension operations should not be done simultaneously with the plastic in face of the probability that a pessary can sustain the womb in position. 4. Retroversion complicated by aggravated prolapsus requires simultaneous plastic and suspension operations to effect a cure. 5. The treatment of retroversion with a fixed uterus is that for pelvic inflammation. Whenever the latter requires laparotomy, or colpotomy, the retroversion becomes subject to such surgical treatment as may appear best suited to the particular case. 6. Retroversion, simple or complicated, in which mechanical support and plastic operation have failed to cure or to relieve, and in which the symptoms demand relief, constitutes a proper indication for a suspension operation.

Reports on Progress.

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GYNECOLOGY.

IN CHARGE OF JOSEPHINE MILLIGAN, M. D.

JACKSONVILLE, ILL.

A Comparative Study of the Immediate Recovery of Patients Following Vaginal, Total Abdominal and Supravaginal Hysterectomies (LeRoy Brown, the American Journal of Obstetrics and Diseases of Women and Children).—The following statistics culled from two services of the Woman's Hospital have been arranged under the respective heads: 1. Vaginal hysterectomies, complete abdominal hysterectomies and supravaginal hysterectomies with cervix left in. Vaginal Hysterectomies, 34 in number, having been done chiefly in the following manner: Hemostasis of the uterine arteries by vasotribe or angiotribe. After complete separation of uterus and the diseased adnexa the broad ligaments have been clamped off. Sterile gauze packing is loosely applied. The clamps are removed at the end of twenty-four hours, and the gauze is all removed by the seventh day. Complete Hysterectomies, 35 in number. The method of operating was as follows, uterine arteries are ligated with catgut. The ovarian are obliterated by the Skene electric clamp or tied off with catgut. The pelvic peritoneum is covered with sterile gauze, a free end of which protrudes from the vagina. Supravaginal Hysterectomies.—Of 54 the method of operating was: The ovarian and uterine arteries of both sides were secured by catgut. The anterior and posterior flaps are sutured with a running catgut Lembert suture, shutting off the stumps of the cervix and leaving no raw surface exposed. The intervening dead space between the flaps has either been drained for twenty-four hours by a gauze strip through the cervical canal into the vagina, or no drainage is used. The death rate was for the 36 cases of vaginal hysterectomy, $5\frac{1}{2}$ per cent; for the 36 cases of completed hysterectomy $2\frac{3}{4}$ per cent; for the 59 cases of supravaginal hysterectomy is 8 1-3. In the recoveries both the temperature and pulse show a remarkable similarity. There seems to be a slight difference in favor of the vaginal route, probably due to the absence of sutures in the abdominal wall. If there is no drainage and no sepsis the recovery is smoother, in cases having no abdominal wound. Drainage necessitating painful dressings and an abdominal wound are very harrassing to the patient. Drainage through the cervix in supravaginal hysterectomy is often dangerous. In three fatal cases of this series, the sepsis could not have occurred from the pathological condition present. In the two other fatal cases there were pus tubes, but both were removed without rupture, yet sepsis followed. The conclusion was that it is through the gauze through the cervix that the infection traveled. From these statistics the following conclusions are drawn: 1. The finished result of supravaginal hysterectomy is most satisfactory, but

there is a possibility of a secondary infection, that if it occurs needs a secondary operation. 2. The chance of this infection occurring is greatest when a gauze drain is passed through the cervix, or the cervical canal is left open. 3. Total abdominal hysterectomy offers less likelihood of complications, and offers to the patient a surer means of uninterrupted recovery.

Results of Salpingostomy and of Resection and Ignipuncture of Ovaries (Goldspohn, the American Journal of Obstetrics and Diseases of Women, November, 1901).—From a study of 105 cases the following conclusions are drawn: 1. In patients who are not near the menopause, and who are not tainted by tubercular or malignant disease, one or the part of one or both ovaries can frequently be preserved, with or without the retention of the corresponding tube, in the following conditions: (a) In follicular cystic degeneration or partially cirrhotic induration due to inflammatory processes or other circulatory disorders. (d) In extirpating parovarian cysts, dermoid and fibroid tumors, with or without the uterus. (c) With great caution, in the extirpation of nonpapillary glandular cystomata that are devoid of surface papillomata and other evidences of malignancy. 2. Necessary for success in the resection of the uterine adnexa is the exercise of asepsis in the highest degree, the use of a minimum amount of fine and readily absorbable suture material, and it to be applied without too much tension. 3. A generous median ventral incision provides the best access for this conservative treatment of the adnexa, in cases where septic accumulations in the parts are not certainly absent, and when extreme fixations of the parts abound. If these complications are not present, and retroversion of the uterus exists, the resection of the adnexa is most auspiciously and easily effected via the dilated internal inguinal rings in conjunction with a thorough Alexander operation. 4. Vaginal celiotomy does not provide a favorable access for conservative surgical treatment of ovaries and tubes; but it does frequently admit of ignipuncture. 5. Resection is the more ideal and conservative measure, and should be preferred to ignipuncture, if the parts are sufficiently accessible without undue traction upon their lateral supports, and when asepsis in the surrounding wound and in the general execution is reasonably assured.

Some Odd and Rare Cases and Experiences in Pelvic and Abdominal Surgery (Frederick, The American Journal of Obstetrics and Diseases of Women and Children, November, 1901).—Wounded Ureters.—Case I. In removing a uterine fibroid, the size of a full term pregnancy, one inch of the right ureter was taken too. A uretero-ureteral anastomosis was made, that did not hold, so a ureteral-vaginal fistula was formed, that lasted about eight months. Suddenly the urine ceased to flow through the fistula an agonizing pain developed in the right kidney, due to the formation of an acute hydronephrosis. Soon the tumor and pain began to disappear, and the urine ceased to pass into the vagina, but did flow into the bladder. For the last five years patient has been well. Case II. In removing a uterus for lymphadenoma, the left ureter was probably par-

tially closed by a suture. There was excessive tenderness and pain over left kidney for a week, then urine began to come through the vagina and so continued for months; then would disappear for several days, to again appear through the vaginal fistula, and finally disappeared entirely. The patient has been well for nearly three years. *Sigmoido-Vaginal Fistula.*—Patient had fever and a foul smelling vaginal discharge, there was sloughing of the vaginal portion of the cervix uteri; later there was free hemorrhage from the vagina. Some soft tissue was curetted away and the uterine sound was found to pass freely into some abdominal cavity. After some months, while the patient became gradually worse, the bowels began to move freely into the vagina, and she began at once to improve. Before this the constipation had been almost absolute. Six months after the formation of the fistula, the condition of the parts was as follows: the left lateral half of the cervix and body of the uterus were gone, allowing the finger to enter the uterine cavity to the fundus; the parts were covered with healthy looking epithelium; the left utero-vaginal junction, the uterine artery and vein, and a part of the left broad ligament had been destroyed by the necrotic process; the examining finger passed just left of the uterus into the gut; rectal examination showed complete occlusion of the rectum, four inches above the anus. In operating, a free cross-section of the sigmoid was made at the point of the utero-vaginal junction that was freed of adhesions, and then the rectal end of the gut was brought up and the two united by a Murphy button. The mesocolon was cut and stretched, before the two ends could be made to meet; an end of sigmoid to side of rectum anastomosis was made. Between the occluded end of the rectum and the point where the sigmoid opened into the vagina was about three inches of gut that was absolutely closed. This was the only tissue left to close the opening from the peritoneum into the vagina as the sloughing had been extensive. The piece of intestine was stitched over the opening and the abdomen closed. The patient made an uninterrupted recovery. The cause of this unusual case is unknown, it may have been due to a sigmoid ulcer setting up an infective inflammation.



Hysteria.—

℞ Liq. potass. arsenitis..... fl. ʒss

Sig.: Three to five drops in water t. i. d. after meals.—*Bartholow.*

℞ Tinct opii..... fl. ʒj

Tinct. nucis vomicae..... fl. ʒij

M. Sig.: Three drops in water t. i. d. (For weight on the head, flushings, and hot and cold perspirations.)—*Ringier.*

℞ Ammon. bromidi..... ʒij

Spir. ammon. aromat..... fl. ʒj

Aq..... fl. ʒ iv

M. Sig. Dessertspoonful well diluted t. i. d.—*Hartshorne, Dom. Med. Monthly.*

Fortnightlettes

JOIN THE A. M. A. EXCURSION TO SARATOGA SPRINGS.—Reduced rates on the railroads and at hotels. Full particulars of Dr. Chas. Wood Fassett, St. Joseph, Mo.

THE president of San Francisco Board of Health recommends the destruction of the Chinese quarter, claiming that Chinatown cannot be rendered sanitary except by total obliteration.

MISSOURI VALLEY MEDICAL SOCIETY.—The Semi-Annual meeting will be held at Lindell Hotel, Lincoln, Neb., on March 20th. An entertaining program has been sent out and a large attendance is anticipated.

KENTUCKY CELEBRATES.—The annual banquet of the local Kentucky Society was held on the evening of March 5th. A number of Kentucky celebrities were guests of the society, notable among these was Dr. J. M. Mathews of Louisville.

RUSH MEDICAL COLLEGE TO ADMIT WOMEN.—The faculty of Rush Medical College, Chicago, have adopted resolutions commending the opening of the courses of that institution to women, the change to take effect in the fall. This recommendation will undoubtedly be adopted by the board of trustees.

WONDER IF IT'S TRUE.—Here is a new one for nose bleed and told in all seriousness. Ice applied to the external genitals—the scrotum in men, the labia in women—is said to be the best and simplest method for controlling blood spitting and nosebleed.

THE TOTAL EMIGRATION OF SWEDES to America during the last fifty years has exceeded 850,000, while about 150,000 have gone to other countries. Of the emigrants to the United States only 5 per cent have returned to their native country.

HOME FOR LEPERS.—A bill has been introduced into Congress by Senator Platt providing for the establishment of a home for lepers in the United States. A location will be selected in a dry, warm climate and its establishment will be placed in the hands of a commissioner who must be a physician.

NEW APPOINTMENTS BY HIS HONOR, THE GOVERNOR.—Gov. Dockery has appointed Dr. J. A. B. Adcock of Johnston County, a member of the State Board of Health, vice Dr. C. B. Elkins, resigned. Dr. C. B. Elkins of Christian County was in turn appointed prison physician, vice Dr. Z. T. Martin, resigned.

THE density of population in foreign countries has recently been computed. Great Britain leads with 132 inhabitants per square kilometer, which is equal to 0.3861 square mile; then comes Japan, 114.4; Italy, 106.6; the German Empire, 104.2; then comes Austria, 87; Hungary 59.6; France, 72.2; Spain, 85.9; the United States, 8.4; Russia, 5.9.

DR. CHRISTIAN FENGER, of Chicago, one of the world's greatest pathologists, died on March 8th, of pleuro-pneumonia, after an illness of one week. He was 61 years of age.

LOCATION FOR SALE.—Will sell my office outfit cheap, including good practice. Railroad town; 800 population; 45 miles from St. Louis. Fine country. Good opening. Address, DR. S. E. YECK, Wentzville, Mo.

OFF FOR MEXICO.—Dr. J. B. Murphy, of Chicago, made St. Louis a short visit recently. The doctor is now doing Mexico, this being his annual vacation season. Climatic conditions in the central section of our country are always of a nature, during March, to make the climate of Mexico appear most inviting.

YOU'LL HAVE TO SHOW US.—Japanese dentists, according to a contemporary, perform their operations in tooth-drawing with the thumb and forefinger of one hand. The skill necessary to do this is acquired only after long practice, but when once it is obtained the operator is able to extract half a dozen teeth in about thirty seconds without once removing his fingers from the patient's mouth. A dentist in this country is mentioned in the papers as using this method with success, having learned it from a Japanese.

POPULATION OF FRANCE.—The census taken in France in 1901 shows that the population is increasing very slowly. The results showed an increase of 444,613 inhabitants during the last five years, which is much better than during the period from 1891 to 1896, when the increase was only 195,027. Other nations are increasing much more rapidly, the population of Germany has increased about 7,000,000 during the last ten years, that of Austria-Hungary 4,000,000 and that of Great Britain about 5,000,000.

HOT MILK.—Hot milk is a most nutritious beverage—a real luxury, the value of which but few people know. Many who have abundance of milk never think of using it as a drink—or rather as an estable—for we should eat milk instead of drinking it. That is, take it in small sips. Why? Because the casein of milk when it comes in contact with the acid of the gastric fluid, coagulates and forms curd, and if swallowed in large quantities at once, a large curd is formed, which the stomach handles with difficulty. The gastric fluid can mingle much more readily with the small curds that result from sipping the milk.

FRENCH SCIENTIST'S DISCOVERY.—At a meeting of the National Society of Physicians at Lyons, Dr. Lepine announced that he had isolated from the urine of pneumonic patients a crystallizable substance, the study of which he believes will give the key to the pathogenesis of diabetes. This substance *in vitro* prevents glycolysis in the blood, so that, if it is not eliminated or destroyed the blood becomes surcharged with glucose. The theory advanced is that although in pneumonic patients this substance is eliminated, normally it is destroyed by the pancreas; hence the pancreas does not elaborate a glycolytic substance, but in its normal state destroys an antiglycolytic substance which is always present in the blood.



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MEDICAL MEMORANDA.

We call attention to an article which we publish this month relating to the physiologic action of petroleum. These experiments are along the lines carried out by an eminent English physician and the petroleum preparation first used was Angier's Petroleum Emulsion, which is the original and the first petroleum placed before the medical profession. Angier's Petroleum Emulsion is today prescribed by leading physicians of this country and Europe and its value in therapeutics is thoroughly established.

EXCERPTS

From the Remarks Made by Dr. Albert C. Barnes of Philadelphia at the Second Annual Meeting of the American Therapeutic Society, Held at Washington, D. C., May 8, 1901.

The paper of Dr. Reyburn just read merely recites the well-known fact that petroleum, when administered internally, is not absorbed from the gastro-intestinal tract, but, as is equally well known, a remedy may have the most pronounced physiologic effects purely on account of its mechanical properties. Dr. Robinson of Philadelphia states in the Medical News of July 14, 1900: "In over fifty selected cases where nutrition, digestion and body weight were impaired and the purest oil administered in one or two dram doses, four times a day for periods of from three to six months, there was in every instance increase in weight and improvement in health, strength and feeling of well-being. The gain in weight was five and a quarter to twenty-three and a half pounds. There was no other change in living conditions or medication which might have caused these improvements." These clinical effects have been noted and recorded by a number of other observers. The manner in which petroleum accomplishes these results is shown by the laboratory experiments described in detail by the speaker. It was found that the addition of petroleum to albumen digested by an artificial gastric juice under exactly the same conditions as prevailed in the human system, very materially hastened and facilitated the process of digestion; it was more rapid and complete than in the same experiment conducted without petroleum. Furthermore, it was shown experimentally that the mechanical influence of petroleum upon the churning, peristaltic movements of the upper portions of the small intestines favorably influenced the processes of

absorption. In view of these experiments, it can be safely concluded that the manner in which petroleum beneficially effects nutrition is by facilitating, expediting and completing the processes of digestion and assimilation of food. Another experiment described by the speaker was that conducted upon a man with marked malnutrition, in which the changes in metabolism were accurately studied for a period of three weeks by feeding the patient upon a normal diet and then determining the daily elimination of nitrogen in the urine and faeces. It was found that under the influence of petroleum the retention of nitrogenous matter in the system was increased. As is well known, the only method of determining the influence of any agent upon nutrition is by determining the daily body elimination of nitrogen in the urine and faeces; if a patient's retention of nitrogen is increased, the most important element of the tissues is conserved, nutrition is correspondingly improved. Furthermore, the facts that petroleum passes through the intestines in its original form, and that it is a solvent of many remedies administered for their antiseptic and astringent influence upon the intestines, indicate a useful field for petroleum as a vehicle. Robinson states (*ibid.*): "I have extensively given from five to ten grains of salol in two drams of oil, four times a day, and reclaimed the oil from the faeces and found it to contain some salol and its components, phenol and salicylic acid. This proves the carrying of a chemical antiseptic and antiferment through the entire canal." This work has been corroborated by numerous other observers. The speaker stated in conclusion that the bulk of experimental and clinical evidence tends to show that petroleum is entitled to a wider field of application in medicine.

PREFERRED SPACE.

Some advertisers will not under any circumstances use a publication unless they can secure a preferred position. If an advertiser is convinced that a publication brings good results and does not take space simply because he cannot have just the position he desires, this is a plain case of cutting off the nose to spite the face. Advertisements at the present time are gotten up so cleverly that a great deal of interest is taken in them. The majority of readers enjoy looking through the advertising pages of a magazine. So really an ad not placed in preferred position is of more value.—Alkaloidal Clinic.